

Effect of PCBs and PBDEs on thyroid and vitamin A levels in bald eagles

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Recent studies have shown polybrominated diphenyl ethers (PBDEs) to be notable chemicals of concern. PBDEs are widely used flame retardants and appear to be increasing exponentially in the environment. PBDEs have a similar molecular structure to polychlorinated dibenzo-p-dioxins (PCDDs), furans (PCDFs), and biphenyls (PCBs). Since these chemicals are known to be toxic, persistent, and bioaccumulative there is concern that PBDEs will have similar detrimental effects on wildlife and humans. Studies have shown that PCBs and PBDEs can impair the metabolism of vitamin A and decrease circulating thyroid hormones, which are required for proper growth, development, cell differentiation, immunology, vision, and reproduction. The objective of this study is to investigate the effects of PCBs and PBDEs on Vit. A and thyroid hormones (TT3 and TT4) in bald eagles. Blood samples were collected from nestlings at 6 different sites; 5 in British Columbia and 1 in Southern California. The results show that PCBs significantly affect TT4 levels in the plasma, but not TT3 or vitamin A. The results are not yet available for PBDEs, but will be discussed at the conference.